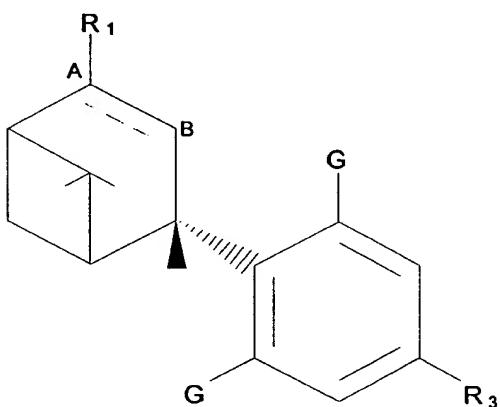


THE CLAIMS

What is claimed is:

5 1. A pharmaceutical composition for treating or preventing hypertension, inflammation, peripheral pain, gastrointestinal disorders, or autoimmune diseases, comprising as an active ingredient a compound of the general formula:



having the (3S,4S) configuration, and which is essentially free of the (3R,4R) enantiomer,
10 wherein:

the dashed line A---B designates an optional double bond,

R_1 is (a) $-R'N(R'')_2$ wherein R' is C_1-C_5 straight or branched chain alkyl and each R'' , which may be the same or different, is hydrogen or C_1-C_5 straight or branched chain alkyl optionally containing a terminal $-OR'''$ or $-OC(O)R'''$ moiety wherein R''' is hydrogen or C_1-C_5 straight or branched chain alkyl, (b) $-Q$ wherein Q is a heterocyclic moiety having a labile hydrogen atom so that said moiety acts as a carboxylic acid analogue, (c) $-R'X$ wherein R' is C_1-C_5 straight or branched chain alkyl and X is halogen, (d) $-R'C(O)N(R'')_2$ wherein R' is a direct bond or C_1-C_5 straight or branched chain alkyl and each R'' , which may be the same or different, is hydrogen or C_1-C_5 straight or branched chain alkyl optionally containing a terminal $-OR'''$ or
15 $-OC(O)R'''$ moiety wherein R''' is hydrogen or C_1-C_5 straight or branched chain alkyl, (e) $-R'C(O)OR''$ wherein R' is a direct bond or C_1-C_5 straight or branched chain alkyl and R'' is hydrogen or C_1-C_5 straight or branched chain alkyl optionally containing a terminal $-OR'''$ or
20 $-OC(O)R'''$ moiety wherein R''' is hydrogen or C_1-C_5 straight or branched chain alkyl.

-OC(O)R^{'''} moiety wherein R^{'''} is hydrogen or C₁-C₅ straight or branched chain alkyl, (f) -R' wherein R' is C₁-C₅ straight or branched chain alkyl, or (g) -R'OR^{'''} wherein R' is C₁-C₅ straight or branched chain alkyl and R^{'''} is hydrogen or C₁-C₅ alkyl;

G is hydrogen; and

5 R₃ is (a) C₁-C₁₂ straight or branched chain alkyl, (b) -OR^{'''}, in which R^{'''} is a straight chain or branched C₂-C₉ alkyl which may be substituted at the terminal carbon atom by a phenyl group, or (c) -(CH₂)_nOR^{'''} wherein n is an integer of 1 to 7 and R^{'''} is hydrogen or C₁-C₅ alkyl.

10 2. The compound of claim 1, wherein R₃ is a straight or branched chain C₅-C₁₂ alkyl.

3. The compound of claim 1, wherein R₃ is 1,1-dimethyl heptyl or 1,2-dimethyl heptyl.

4. The compound of claim 1 wherein Q is a saturated or unsaturated ring of 4 to 8 members
15 consisting of C with at least one of N, S, and O, said ring being optionally substituted with -COR^{'''} or -COOR^{'''} wherein R^{'''} is a hydrogen or C₁-C₅ straight or branched chain alkyl.

5. The compound of claim 1, wherein R₁ is -CH₂OH, -C(O)N(R^{''})₂, -C(O)OR^{''},
-COOH, an amino acid, or a carboxamide.

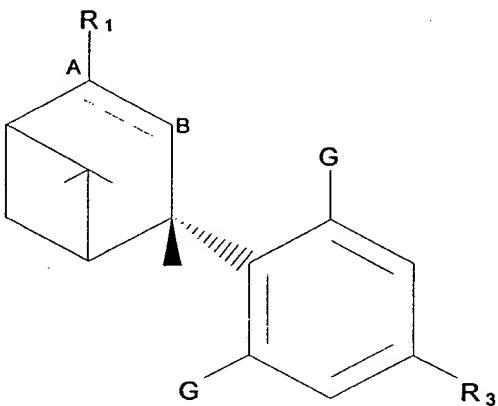
20

6. A pharmaceutical composition for treating, preventing, or managing hypertension, inflammation, peripheral pain, gastrointestinal disorders, or autoimmune diseases comprising as an active ingredient a therapeutically effective amount of a compound of claim 1.

25 7. The pharmaceutical composition of claim 6 further comprising a pharmaceutically acceptable diluent or carrier.

8. The pharmaceutical composition of claim 7, wherein the diluent is an aqueous cosolvent solution comprising a pharmaceutically acceptable cosolvent, a micellar solution or emulsion
30 prepared with natural or synthetic ionic or non-ionic surfactants, or a combination of such cosolvent and micellar or emulsion solutions.

9. A method for preventing, treating, or managing hypertension, inflammation, peripheral pain, gastrointestinal disorders, or autoimmune diseases comprising administering to an individual in need thereof a pharmaceutical composition comprising a therapeutically effective amount a compound of the general formula:



5 having the (3S,4S) configuration, and which is essentially free of the (3R,4R) enantiomer, wherein:

A---B designates an optional double bond,

6 R_1 is (a) $-\text{R}'\text{N}(\text{R}'')_2$ wherein R' is $\text{C}_1\text{-C}_5$ straight or branched chain alkyl and each R'' , which may be the same or different, is hydrogen or $\text{C}_1\text{-C}_5$ straight or branched chain alkyl
10 optionally containing a terminal $-\text{OR}'''$ or $-\text{OC(O)R}'''$ moiety wherein R''' is hydrogen or $\text{C}_1\text{-C}_5$ straight or branched chain alkyl, (b) -Q wherein Q is a heterocyclic moiety having a labile hydrogen atom so that said moiety acts as a carboxylic acid analogue, (c) $-\text{R}'\text{X}$ wherein R' is $\text{C}_1\text{-C}_5$ straight or branched chain alkyl and X is halogen, (d) $-\text{R}'\text{C(O)N}(\text{R}'')_2$ wherein R' is a direct bond or $\text{C}_1\text{-C}_5$ straight or branched chain alkyl and each R'' , which may be the same or different,
15 is hydrogen or $\text{C}_1\text{-C}_5$ straight or branched chain alkyl optionally containing a terminal $-\text{OR}'''$ or $-\text{OC(O)R}'''$ moiety wherein R''' is hydrogen or $\text{C}_1\text{-C}_5$ straight or branched chain alkyl, (e) $-\text{R}'\text{C(O)OR}''$ wherein R' is a direct bond or $\text{C}_1\text{-C}_5$ straight or branched chain alkyl and R'' is hydrogen or $\text{C}_1\text{-C}_5$ straight or branched chain alkyl optionally containing a terminal $-\text{OR}'''$ or $-\text{OC(O)R}'''$ moiety wherein R''' is hydrogen or $\text{C}_1\text{-C}_5$ straight or branched chain alkyl, (f) $-\text{R}'$
20 wherein R' is $\text{C}_1\text{-C}_5$ straight or branched chain alkyl, or (g) $-\text{R}'\text{OR}'''$ wherein R' is $\text{C}_1\text{-C}_5$ straight or branched chain alkyl and R''' is hydrogen or $\text{C}_1\text{-C}_5$ alkyl;

G is hydrogen, halogen, or -OR₂ wherein R₂ is hydrogen or C₁-C₅ straight or branched chain alkyl optionally containing a terminal -OR^{'''}, -OC(O)R^{'''}, C(O)OR^{'''}, or -C(O)R^{'''} moiety wherein R^{'''} is hydrogen or C₁-C₅ straight or branched chain alkyl; and

R₃ is (a) C₁-C₁₂ straight or branched chain alkyl, (b) -OR^{'''}, in which R^{'''} is a straight 5 chain or branched C₂-C₉ alkyl which may be substituted at the terminal carbon atom by a phenyl group, or (c) -(CH₂)_nOR^{'''} wherein n is an integer of 1 to 7 and R^{'''} is hydrogen or C₁-C₅ alkyl.

10. The method of claim 9 wherein, R₁ is -CH₂OH, G is hydrogen or OR₂, R₂ is a lower alkyl group, and R₃ is a straight or branched chain C₅-C₁₂ alkyl.

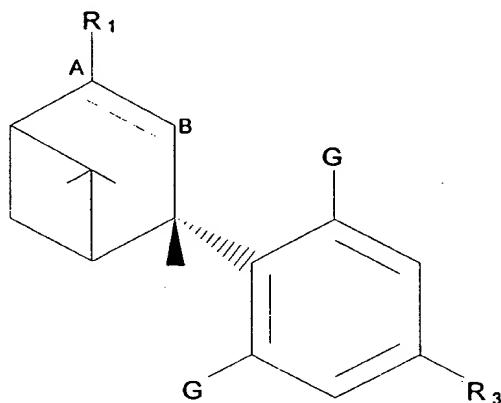
10

11. The method of claim 10, wherein G is -OCH₃ and R₃ is 1,1-dimethyl heptyl.

12. The method of claim 10, wherein R₁ is -CH₂OH, G is -OCH₃, and R₃ is 1,1-dimethyl heptyl.

15

13. A method for preventing, treating, or managing tumors expressing CB2 receptors comprising administering to an individual in need thereof a pharmaceutical composition comprising a therapeutically effective amount a compound of the general formula:



20 having the (3S,4S) configuration, and which is essentially free of the (3R,4R) enantiomer, wherein:

A---B designates an optional double bond,

R_1 is (a) $-R'N(R'')_2$ wherein R' is C_1-C_5 straight or branched chain alkyl and each R'' , which may be the same or different, is hydrogen or C_1-C_5 straight or branched chain alkyl optionally containing a terminal $-OR'''$ or $-OC(O)R'''$ moiety wherein R''' is hydrogen or C_1-C_5 straight or branched chain alkyl, (b) $-Q$ wherein Q is a heterocyclic moiety having a labile hydrogen atom so that said moiety acts as a carboxylic acid analogue, (c) $-R'X$ wherein R' is C_1-C_5 straight or branched chain alkyl and X is halogen, (d) $-R'C(O)N(R'')_2$ wherein R' is a direct bond or C_1-C_5 straight or branched chain alkyl and each R'' , which may be the same or different, is hydrogen or C_1-C_5 straight or branched chain alkyl optionally containing a terminal $-OR'''$ or $-OC(O)R'''$ moiety wherein R''' is hydrogen or C_1-C_5 straight or branched chain alkyl, (e) $-R'C(O)OR''$ wherein R' is a direct bond or C_1-C_5 straight or branched chain alkyl and R'' is hydrogen or C_1-C_5 straight or branched chain alkyl optionally containing a terminal $-OR'''$ or $-OC(O)R'''$ moiety wherein R''' is hydrogen or C_1-C_5 straight or branched chain alkyl, (f) $-R'$ wherein R' is C_1-C_5 straight or branched chain alkyl, or (g) $-R'OR'''$ wherein R' is C_1-C_5 straight or branched chain alkyl and R''' is hydrogen or C_1-C_5 alkyl;

15 G is hydrogen, halogen, or $-OR_2$ wherein R_2 is hydrogen or C_1-C_5 straight or branched chain alkyl optionally containing a terminal $-OR'''$, $-OC(O)R'''$, $C(O)OR'''$, or $-C(O)R''$ moiety wherein R''' is hydrogen or C_1-C_5 straight or branched chain alkyl; and

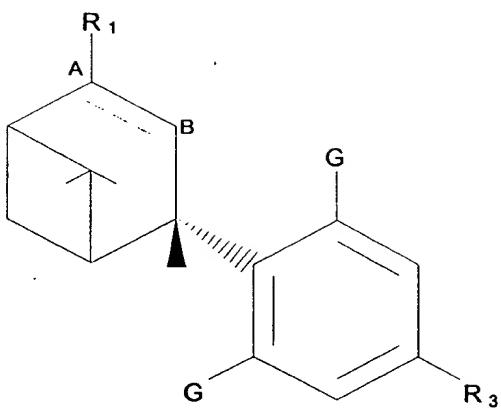
16 R_3 is (a) C_1-C_{12} straight or branched chain alkyl, (b) $-OR'''$, in which R''' is a straight chain or branched C_2-C_9 alkyl which may be substituted at the terminal carbon atom by a phenyl group, or (c) $-(CH_2)_nOR'''$ wherein n is an integer of 1 to 7 and R''' is hydrogen or C_1-C_5 alkyl.

14. The method of claim 13 wherein, R_1 is $-CH_2OH$, G is hydrogen or OR_2 , R_2 is a lower alkyl group, and R_3 is a straight or branched chain C_5-C_{12} alkyl.

25 15. The method of claim 14, wherein G is $-OCH_3$ and R_3 is 1,1-dimethyl heptyl.

16. The method of claim 14, wherein R_1 is $-CH_2OH$, G is $-OCH_3$, and R_3 is 1,1-dimethyl heptyl.

30 17. A CB2 specific antagonist comprising a compound of the general formula:



having the (3S,4S) configuration, and which is essentially free of the (3R,4R) enantiomer, wherein:

A---B designates an optional double bond,

R_1 is (a) $-R'N(R'')_2$ wherein R' is C_1-C_5 straight or branched chain alkyl and each R'' , 5 which may be the same or different, is hydrogen or C_1-C_5 straight or branched chain alkyl optionally containing a terminal $-OR'''$ or $-OC(O)R'''$ moiety wherein R''' is hydrogen or C_1-C_5 straight or branched chain alkyl, (b) $-Q$ wherein Q is a heterocyclic moiety having a labile hydrogen atom so that said moiety acts as a carboxylic acid analogue, (c) $-R'X$ wherein R' is C_1-C_5 straight or branched chain alkyl and X is halogen, (d) $-R'C(O)N(R'')_2$ wherein R' is a direct 10 bond or C_1-C_5 straight or branched chain alkyl and each R'' , which may be the same or different, is hydrogen or C_1-C_5 straight or branched chain alkyl optionally containing a terminal $-OR'''$ or $-OC(O)R'''$ moiety wherein R''' is hydrogen or C_1-C_5 straight or branched chain alkyl, (e) $-R'C(O)OR''$ wherein R' is a direct bond or C_1-C_5 straight or branched chain alkyl and R'' is hydrogen or C_1-C_5 straight or branched chain alkyl optionally containing a terminal $-OR'''$ or 15 $-OC(O)R'''$ moiety wherein R''' is hydrogen or C_1-C_5 straight or branched chain alkyl, (f) $-R'$ wherein R' is C_1-C_5 straight or branched chain alkyl, or (g) $-R'OR'''$ wherein R' is C_1-C_5 straight or branched chain alkyl and R''' is hydrogen or C_1-C_5 alkyl;

G is hydrogen, halogen, or $-OR_2$ wherein R_2 is hydrogen or C_1-C_5 straight or branched chain alkyl optionally containing a terminal $-OR'''$, $-OC(O)R'''$, $C(O)OR'''$, or $-C(O)R'''$ moiety 20 wherein R''' is hydrogen or C_1-C_5 straight or branched chain alkyl; and

R₃ is (a) C₁-C₁₂ straight or branched chain alkyl, (b) -OR'''', in which R''' is a straight chain or branched C₂-C₉ alkyl which may be substituted at the terminal carbon atom by a phenyl group, or (c) -(CH₂)_nOR''' wherein n is an integer of 1 to 7 and R''' is hydrogen or C₁-C₅ alkyl.